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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TESKIN, FRED M

ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/926,742

Applicant(s)
Yokota, et al.

Examiner
Fred Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 21, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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1. The Response of October 21, 2002 has been fully considered with the effect that the prior art rejections based on Arai et al and EP '954 are maintained as detailed below and the Japanese '014 reference is dropped as unnecessary. Claims 1-16 are currently pending and under examination.

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Arai et al 6235855 B1 ("Arai").

The basis of the rejection is maintained substantially as set forth in the previous Office action (paper no. 5, pp. 2-4) and for the reasons which follow.

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4. Applicants' arguments filed October 21, 2002 have been fully considered but are not persuasive of error in the repeated rejection.

Applicants traverse the rejection, arguing (1) that Arai discloses that the preferred, or even required, catalytic compound to give rise to its desired result is a transition metal compound with a metallocene skeleton having one crosslinking group and (2) that, based on Examples 1-2 and Comparative Example 1, the polymerization activity of the isopropylidene/dimethylsilylene-bridged compound of the invention is significantly higher than a bis(dimethylsilylene)-bridged compound that is "consistent" with the disclosure of Arai.

Examiner disagrees. As to point (1), the assertedly "innumerable" alternatives for bridging group Y are narrowed considerably when taking into account the teachings of Arai directed to production of an aromatic vinyl compound-olefin copolymer having a very high aromatic vinyl compound content. To obtain such a product, Arai advises that a transition metal component having a bite angle of at most 120° be employed and that such a bite angle can be accomplished in the formula (2-1) and (2-2) when Y is a methylene group having hydrogen or a C_{1-15} hydrocarbon

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group. Further, in the case of formula (2-2), Arai indicates the two Y bridging groups may be the same or different (col. 9, lines 1-12). Selection of any of the listed alkylene groups for Y in formula (2-2) would of course provide a bis-bridged metallocene corresponding to applicants' component (A) as claimed (claims 1, 2 and 11). And since Arai expressly teaches the alternativeness between mono-bridged [formula (2-1)] and bis-bridged [formula (2-2)] metallocenes as the transition metal catalyst component for producing aromatic vinyl compound-olefin copolymers having a very high aromatic vinyl compound content, examiner maintains that one of ordinary skill would have been led to employ the latter in the disclosed copolymerization process where a copolymerizate having such a high aromatic vinyl compound content is desired.

To the extent that Arai "prefers" a transition metal compound with a metallocene skeleton having one crosslinking group, this does not amount to a teaching away from the bis-bridged metallocenes of formula (2-2) of Arai. It is well settled that preferred embodiments do not constitute a teaching away from less preferred (or even non-preferred) embodiments of a broader disclosure. *In re Boe*, 148 USPQ 507 (CCPA 1966); *Merck & Co. v. Biocraft Labs.*, 10 USPQ2d 1843 (Fed. Cir. 1989).

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Moreover, Arai does not denigrate or otherwise discourage the use of the bis-bridged metallocene of formula (2-2) as the transition metal catalyst component of the disclosed copolymerization process. Quite to the contrary: both the mono-bridged and bis-bridged transition metal compounds are described in the embodiment of claim 11 of Arai, which is directed to producing a polymer selected from an isotactic aromatic vinyl compound polymer and an aromatic vinyl compound-olefin copolymer. See column 52, lines 1-15 and column 54, lines 12-17 where Y (the bridging group) is defined as a methylene or silylene group which has the same substituents as earlier mentioned in column 9.

Given that producing an aromatic vinyl compound-olefin copolymer by polymerizing in the presence of, *inter alia*, a bis-bridged transition metal compound of formula (2-2) wherein the bridging groups Y may be an alkylene group (e.g., methylene), is an embodiment of Arai's *claimed* invention, the reference can hardly be said to "prefer", let alone "require," a transition metal compound with a metallocene skeleton having one crosslinking group as urged by applicants.

Contrary to point (2) *supra*, applicants' Comparative Example 1 is not "consistent" with the disclosure of Arai. That example

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illustrates the use of a bis(dimethylsilylene)-bridged compound containing two cyclopentadienyl ligands. This compound does not satisfy Arai's requirement that its transition metal compound, whether mono- or bis-bridged, contain at least one ligand which is an (un)substituted benzindenyl group of formula (K-2), (K-3) or (K-4) as described at, e.g., column 3, lines 25 et seq. The same requirement applies to the bis-bridged transition metal compound, per column 8, lines 23-24. Applicants have offered no reasoned explanation as to why one of ordinary skill would expect Comparative Example 1 to be predictive of the performance of the transition metal catalyst component of Arai despite the noted difference in metallocene ligand. Evidence of unexpected results must relate to the closest prior art, *In re DeBlauwe*, 222 USPQ 191, 196 (Fed. Cir. 1984).

Further with respect to point (2), the comparison of specification examples is not germane to the rejection as based on European. This is because, as noted in the prior action, European illustrates the preparation of an ethylene/1-octene copolymer in the presence of a zirconocene catalyst component possessing the requisite number and kind of bridging groups (Example 27(5) and compound A-7 at page 39). An appropriate comparison, therefore,

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should involve substitution of an aromatic vinyl compound for the alpha-olefin in an otherwise identical copolymerization employing a bis-bridged metallocene according to European. Unfortunately, none of the specification examples are intended to demonstrate criticality for substituting an aromatic vinyl compound for an alpha-olefin monomer in the copolymerization process of European.

5. Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 0 721 954 A1 ("European").

The basis of the rejection is maintained substantially as set forth in the previous Office action (paper no. 5, pp. 5-6) and for the reasons which follow.

6. Applicants' arguments filed October 21, 2002 have been fully considered but are not persuasive of error in the repeated rejection.

Applicants traverse the rejection, arguing that the examiner has failed to provide a reason, explanation or specific citation to motivate the artisan to use an aromatic vinyl comonomer as the examiner has alleged.

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Examiner disagrees, and notes that applicants' summary of the motivational statement given in the prior Office action (Response, page 7) conveniently omits the reference therein to specific styrene compounds listed in European as suitable alternatives to aliphatic olefins: styrene, p-methylstyrene, isobutylstyrene and t-butylstyrene - all species of applicants' aromatic vinyl compound - are listed at page 19, lines 17-21 along with various aliphatic alpha-olefins, including 1-octene, the alpha-olefin copolymerized with ethylene in Example 27(5) of the reference. It is therefore maintained that specific citation was provided, as per MPEP 2142, which would have motivated one of ordinary skill in the art to modify the process of European by utilizing, in lieu 1-octene, any of the enumerated aromatic vinyl compounds as comonomer, in the expectation of obtaining a copolymer having the desirable properties assigned to the olefin polymer obtained according to European (e.g., uniform composition and narrow molecular weight distribution; page 41, lines 49-50) as well as manifold commercially valuable utilities well known to the art-skilled.

The deficiency in the comparison of specification examples proposed by applicants as evidence of unobviousness vis-a-vis European has been pointed out above (page 6, bridging paragraph).

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7. No claims are allowed.

8. THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (703) 308-2456. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The appropriate fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 (non-after finals) and (703) 872-9311 (after-finals).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



FRED TESKIN
PRIMARY EXAMINER
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FMTeskin/01-03-03